

Walls, Floors and Stairs

What Can Go Wrong?

The vast majority of our churches are built from stone, which means it vital to know how stone works as a material and what can go wrong with stone in your church. Stone is used in walls, floors and steps in churches. Like many parts of your church, stone can be susceptible to damp if not properly cared for.

Stone is a breathable material, this means that when it rains, stone will absorb the moisture, this may sound problematic, but if stone is paired with appropriate materials, it will work fine. If the mortar used to bind the stone is a hot mix lime mortar, then the moisture will 'breathe out' of the mortar, meaning no moisture will be trapped in the stonework. If cementitious mortar is used with stone, then problems will arise, cement is a non-breathable material, meaning that water cannot penetrate it and 'breathe out' of the wall. This means that moisture gets trapped in the stonework and cause two things, the first is damp can form in the walls through trapped moisture, secondly if the water evaporates in the stone it will leave behind salt particles that will erode the stone through a process called efflorescence, which will cause damage and undermine the church structure.

This can also happen through the use of inappropriate insulation while you may not have wall insulation inappropriate floor insulation using a non-breathable material can also trap moisture and lead to damp and efflorescence, so before you install insulation in the journey to net zero, make sure you research the most effective insulation for your church, and make sure it doesn't do more damage to the church in the long run.

How Should They Be Maintained?

The first thing you can do to maintain your stone is to assess the materials interacting with your stonework. Has cementitious mortar been used anywhere, is the insulation for your floor breathable? While there may not be signs of disrepair in your stone, making sure your stonework has the right conditions is vital for maintaining them for a long time.

If you have any inappropriate material present on your church, it is important you remove it and either repoint the mortar or install new installation. This may seem expensive and unnecessary but it will help

keep costs down long-term and help with damp and therefore heat efficiency. Which will help you on your journey to net zero carbon.

If your church has appropriate materials, then the next thing you can do is routine annual maintenance. This will be a simple job for a member of your PCC to do. As you simply have to monitor your walls, floors and stairs, this can be done by simply walking around the interior and exterior of your church. Firstly, check for damp, this may have come from inappropriate materials which if you have replaced, the damp will most likely dissipate over time, but make sure to keep monitoring it so you are aware of whether or not the damp is going away. If you spot damp it is also worth checking your roofs and rainwater goods, if they are faulty they will cause damp in your walls.

Whilst you are monitoring your stone work, check for efflorescence, this will be evident in white powder on exterior stone, which is in fact salt. If the stone has taken serious damage from this, it may need replacing. It is also useful to monitor the mortar as you go around, buildings are built on ground which moves around owing to moisture content, which can cause cracks and affect heat efficiency, if this happens then you will need to get the affected areas repointed. This does not just affect the walls, check the floors and stairs as well for mortar cracks.

Stairs can be eroded over time with use, even stone ones! Check your stairs for erosion as they could become uneven and therefore a hazard. If steps become particularly bad, they may need replacing.

If you spot any problems, they are best to be dealt with by an appropriate contractor. A stonemason will be able to deal with any problems discussed above. It is best to use our approved list of contractors as they will definitely have the skills and knowledge required when dealing with heritage and listed buildings.

Minor repointing work and the replacement of single stones is a **List B** item and will require you to consult with DAC.

Major repair work involving walls and installing or replacing floor insulation will require a **full Faculty application**.